

CLAIMS

What is claimed is:

1. A user interface method for facilitating configuration of a process plant, the method comprising:

segmenting a display into at least a first portion, a second portion, and a third portion;

displaying in the first portion a workspace to create a simulation algorithm for at least a portion of the process plant, at least a portion of the simulation algorithm being defined by depictions of connections among process objects in the workspace, ;

displaying in the second portion a library of process objects capable of being added to the workspace, at least one of the process objects in the library having at least one associated graphical representation of a physical entity in the process plant corresponding to the process object; and

if a process object in the workspace is selected by a user, displaying in the third portion indications of parameters of the selected process object.
2. A method according to claim 1, wherein the one process object comprises at least one of a stream object, a connection object, an actuator object, a standard process object, a custom process object, or a user defined process object.

3. A method according to claim 1, further comprising: if one of the indications of parameters is selected by the user, providing a display to enable the user to modify a parameter corresponding to the one indication.

4. A method according to claim 1, further comprising:

if the user indicates that a new parameter corresponding to the one process object is to be added, providing a display to enable the user to add the new parameter;

and

displaying in the third portion an indication of the new parameter.

5. A method according to claim 1, further comprising automatically generating at least some of the depictions of connections among process objects in the workspace based on a process graphic created using a process graphics editor, the process graphic depicting at least the portion of the process plant.

6. A method according to claim 1, further comprising prompting the user to select a model for a process object in the workspace, the model to be selected from a plurality of models, the model to simulate behavior of a physical entity in the process plant corresponding to the process object.

7. A method according to claim 6, wherein prompting the user to select the model comprises prompting the user to select the model from at least a step response model and a first principals model.

8. A method according to claim 7, wherein the process object in the workspace is capable of having a step response model associated with a first parameter of the process object and a first principals model associated with a second parameter of the process object.

9. A method according to claim 1, further comprising: if one of the indications of parameters is selected by the user, providing a display to enable the user to link a parameter corresponding to the one indication to a control module adapted to execute on one or more process controllers to implement process control activities in the process plant.

10. A method according to claim 1, further comprising: if one of the indications of parameters is selected by the user, providing a display to enable the user to link a parameter corresponding to the one indication to a control module adapted to execute on one or more process controllers to implement process control activities in the process plant.

11. A system for facilitating configuration of a process plant, the system comprising:

a process graphics editor to facilitate creation or modification of a graphical representation of physical entities in the process plant, the graphical representation adapted to be displayed on a display device;

a process module editor to facilitate creation or modification of a process module, the process module including one or more interconnected process objects representative of one or more corresponding physical entities in the process plant, at least one of the process objects including a method adapted to perform a function using parameter data to produce an output related to process operation associated with the corresponding physical entities in the process plant;

a supervisor module communicatively coupled to the process graphics editor and the process module editor, the supervisor module to detect a change made to the graphical representation of the physical entities in the process plant using the process graphics editor and to instruct the process module editor to make a corresponding change, if any, to the process module.

12. A system according to claim 11, wherein the supervisor module is adapted to detect a change made to the process module using the process module editor and to instruct the process graphics editor to make a corresponding change, if any, to the graphical representation of the physical entities in the process plant.

13. A system according to claim 12, wherein at least some changes made to the process module using the process module editor have no corresponding change to the graphical representation of the physical entities in the process plant.

14. A system according to claim 11, wherein at least some changes made to the graphical representation of the physical entities in the process plant using the process graphics editor have no corresponding change to the process module.

15. A system according to claim 11, wherein the process graphics editor is adapted to cause the graphical representation to be stored in a database;

wherein the process module editor is adapted to store the process module in the database separate from the graphical representation.

16. A system according to claim 11, further comprising a computer readable memory;

wherein the process graphics editor is an application stored on the computer readable memory and is adapted to be executed on a processor to facilitate creation or modification of the graphical representation of physical entities in the process plant;

wherein the process module editor is an application stored on the computer readable memory and is adapted to be executed on the processor to facilitate creation or modification of the process module;

wherein the supervisor module is an application stored on the computer readable memory and is adapted to be executed on the processor to detect the change made to the graphical representation of the physical entities in the process plant and to instruct the process module editor to make the corresponding change, if any, to the process module.

17. A system according to claim 11, wherein the process module editor is adapted to permit a user to select a model for a process object from a plurality of models, the model to simulate behavior of a physical entity in the process plant corresponding to the process object.

18. A system according to claim 17, wherein the process module editor is adapted to permit a user to select at least one of a step response model and a first principals model for the process object.

19. A system according to claim 17, wherein if a connection between a first process object and a second process object in the process module is created, one of the first process object and the second process object is capable of passing to the other of the first process object and the second process object at least one of a connection status, a mass flow parameter, a pressure parameter, a temperature parameter, a specific heat parameter, a density parameter, a flow not possible parameter, a pressure basis for pressure/flow network parameter, or a flow basis for pressure/flow network parameter.

20. A method for facilitating configuration of a process plant, the system comprising:

detecting, using a supervisor module application being executed by a first processor, a change to a graphical representation of physical entities in the process plant, the graphical representation adapted to be displayed on a display device, the change to the graphical representation of physical entities in the process plant made using a process graphics editor communicatively coupled to the supervisor module application;

determining, using the supervisor module application, a corresponding change, if any, to be made to a process module corresponding to the graphical representation of physical entities in the process plant, the process module comprising one or more interconnected process objects representative of the physical entities in the process plant; and

if the corresponding change to be made to the process module is determined, instructing, using the supervisor module application, a process module editor communicatively coupled to the supervisor module application to modify the process module according to the determined change to be made to the process module.

21. A method according to claim 20, the method further comprising:

detecting, using the supervisor module, a change to the process module, the change to the process module made using the process module editor;

determining, using the supervisor module application, a corresponding change, if any, to be made to the graphical representation of physical entities in the process plant corresponding to the detected change to the process module; and

if the corresponding change to be made to the graphical representation of physical entities in the process plant is determined, instructing, using the supervisor module application, the process graphics editor to modify the graphical representation of physical entities in the process plant according to the determined change to be made to the graphical representation of physical entities in the process plant.

22. A method according to claim 20, wherein the process graphics editor and the process module editor are applications executed by the first processor.

23. A method according to claim 20, wherein at least one of the process graphics editor or the process module editor is an application executed by a second processor.

24. A method according to claim 20, wherein at least one of the one or more interconnected process objects comprises at least one of a stream object, a connection object, an actuator object, a standard process object, a custom process object, or a user defined process object.

25. A method according to claim 20, wherein at least one of the one or more interconnected process objects includes a method adapted to perform a function using parameter data to produce an output related to process operation associated with the physical entities in the process plant.

26. A method according to claim 20, the method further comprising:

- copying a version of the graphical representation of physical entities in the process plant, if any, from a database to a computing system separate from the database and communicatively coupled to the database; and
- copying a version of the process module, if any, from the database to the computing system.